

# **Enabling System Technologies to Improve the Economies and Performance of Existing LWRs and Advanced BWR Plants: Improving Offgas System Performance**

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*Final CRADA Report*

**Chemical and Fuel Cycle Technologies Division**

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*Final CRADA Report*

prepared by  
Candido Pereira  
Chemical and Fuel Cycle Technologies Division, Argonne National Laboratory

Participants: GE-Hitachi Nuclear Energy America

December 15, 2020

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## Non Proprietary Final CRADA Report

For the Office of Scientific and Technical Information (OSTI)

**CRADA Number:** 2019-19138

**CRADA Title:** Enabling System Technologies to Improve the Economies and Performance of Existing LWRs and Advanced BWR Plants: Improving Offgas System Performance

**CRADA Start Date** 10/1/2019 – **End Date** 9/30/2020

### DOE Program or Other Government Support

**Program office:** DOE Office of Nuclear Energy

**Program manager name:** Click or tap here to enter text.

**Program manager phone or email:** Click or tap here to enter text.

### Participant(s)

**Participant 1 name:** GE-Hitachi Nuclear Energy Americas, LLC

**Complete address:** Wilmington, NC

**Participant 2 name:** Click or tap here to enter text.

**Complete address:** Click or tap here to enter text.

**Participant 3 name:** Click or tap here to enter text.

**Complete address:** Click or tap here to enter text.

### Argonne National Laboratory

Argonne PI(s): Candido Pereira

### Funding Table

To add rows, right-click in bottom row and select "Insert" "rows above".

	Planned Funding	Actual Funding	In-Kind
Government	\$100000	\$100000	
GE-Hitachi	\$	\$0	\$25000
Enter Participant 2 here	\$	\$	\$
Enter Participant 3 here	\$	\$	\$
<b>Total</b>	<b>\$100000</b>	<b>\$10000</b>	<b>\$25000</b>

### Nature of Work

**Describe the research (summary of Scope of Work and principal objectives of the CRADA):**

The project goal is to study adsorbent materials and adsorption conditions in order to develop recommendations to improve the current BWR off-gas treatment operations with respect to cost savings. ANL tasks included a literature survey on relevant information for the adsorption of radionuclides (e.g., Xe and Kr), including adsorption coefficients on various charcoals, the effect of radionuclide concentration and moisture, and alternative sorption materials; participate in meetings and teleconferences as needed; prepare reports and support efforts INL and other organization Team Members.

**DOE mission area(s):**

Energy and Environmental Science and Technology

Choose an item.

Choose an item.

**Conclusions drawn from this CRADA; include any major accomplishments:**

ANL developed a report covering off-gas system improvement and knowledge transfer and retention based on the literature review for use by the BWR Off Gas Working Group

**Technology Transfer-Intellectual Property**

**Argonne National Laboratory background IP:**

None

**Participant(s) background IP:**

Off-gas treatment system details, charcoal adsorption data

**Identify any new Subject Inventions as a result of this CRADA:**

None

**Summary of technology transfer benefits to industry and, if applicable, path forward/anticipated next steps towards commercialization:**

The off-gas system report developed by ANL will serve as a training tool to familiarize new BWR staff on the operations of the BWR off-gas treatment system based on literature information.

**Other information/results (papers, inventions, software, etc.):**

None

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## **Chemical and Fuel Cycle Technologies Division**

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